

Circuits Practice test

$$Q1 \quad \sum_{mf} = V_t + I \text{ (r)}$$

$$1.000V = 0.87V + (0.87A)r$$

$$r = 0.15 \Omega = \underline{0.149 \Omega}$$

$$Q2 \quad 12.0 - 4.6 = \boxed{7.4V}$$

$$Q3 \quad R_T = ? \quad 66.9 \Omega$$

$$I = 0.239A$$

$$P = I^2 R$$

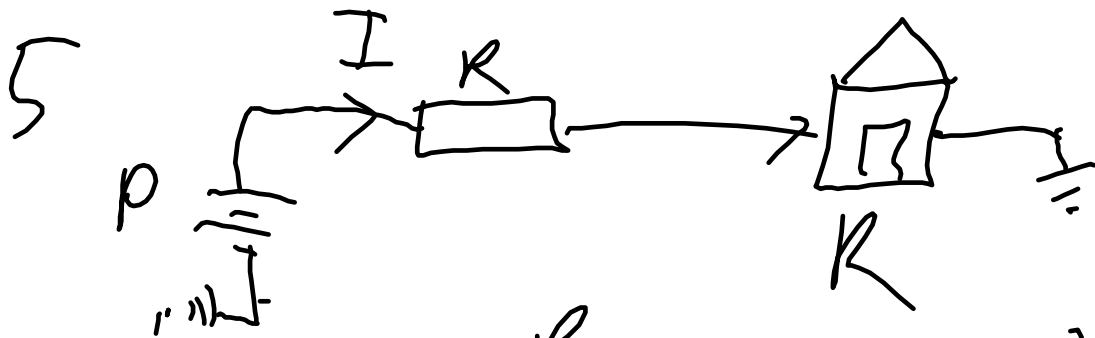
$$= \boxed{2.74W}$$

Q4

$$I = \frac{V}{R} = \frac{8.2V}{100}$$

$$= 0.082 \text{ A}$$

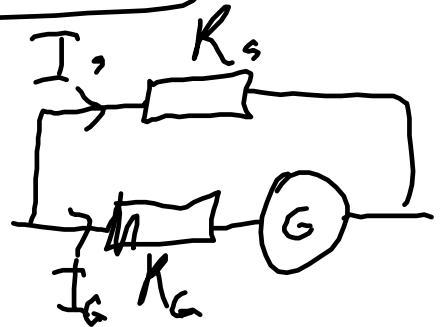
$$82 \text{ mA}$$



$$I = \frac{P}{V} \quad P_R = I^2 R$$

$$2.4 \times 10^5 \text{ W}$$

Q6 30 C



$$Q7 \quad 4.3 \times 10^{-4} \Omega$$

$$Q8 \quad P = I^2 R$$

$$I = \sqrt{\frac{P}{R}} = \sqrt{\frac{0.5 \text{ W}}{250 \Omega}}$$

$$I = 0.0447 \text{ A}$$

$$I = 0.044 \text{ A}$$

$$V = 20 \text{ V}$$

Q 9

$$r = 2.0 \Omega$$

$$\begin{matrix} I_2 \\ \overline{I_2} \\ I_1 \end{matrix} = 4 \quad \begin{cases} P_1 = I_1^2 r = 56 \text{ W} \\ P_2 = I_2^2 r = 200 \text{ W} \end{cases}$$

$$I_2 = 2I_1 \quad 60 \text{ V} - I_1 r - I_1 10 = 0$$

$$60 \text{ V} - 2I_1 r - 2I_1 4 = 0$$